

WHAT IS CLAIMED IS:

1. A refrigerator wherein at least a compressor, a radiator, a first throttle apparatus and an evaporator are connected to one another in an annular form to constitute a main circuit of a refrigeration cycle, a refrigerant which can be brought into a supercritical state by said radiator during operation is charged into said refrigeration cycle, said refrigerator comprises an injection pipe for injecting the refrigerant in the supercritical state on the side of an outlet of said radiator into a cylinder of said compressor.
2. The refrigerator according to claim 1, wherein a second throttle apparatus is provided in an intermediate portion of said injection pipe, and when a discharging temperature of said compressor exceeds a predetermined value, said second throttle apparatus is opened.
3. A refrigerator wherein at least a compressor, a four-way valve, an outdoor heat exchanger, a first throttle apparatus and an indoor heat exchanger are used as constituent elements for constituting a main circuit of a refrigeration cycle, a refrigerant which can be brought into a supercritical state by said outdoor heat exchanger or said indoor heat exchanger during operation is charged into said refrigeration cycle, a pipe branched off from a pipe between said outdoor heat exchanger and said first throttle apparatus is provided with a first check valve, a pipe branched off from a pipe between said indoor heat exchanger and said first throttle apparatus is provided with a second check valve, a downstream pipe of said first check valve and a downstream pipe of said second check valve are merged with each other and connected to a cylinder of said compressor, said first check valve and said second check valve are provided

such that the refrigerant only flows toward said cylinder of said compressor, the refrigerant in the supercritical state is injected into said cylinder of said compressor from said pipe between said outdoor heat exchanger and said first throttle apparatus or said pipe between said indoor heat exchanger and said first throttle apparatus.

4. The refrigerator according to claim 3, wherein a second throttle apparatus is provided in a pipe between said cylinder of said compressor and the merging point between said downstream pipe of said first check valve and said downstream pipe of said second check valve, and when a discharging temperature of said compressor exceeds a predetermined value, said second throttle apparatus is opened.

5. The refrigerator according to any one of claims 1 to 4, wherein carbon dioxide is used as the refrigerant.

6. A refrigerator wherein at least a compressor, a radiator, a first throttle apparatus and an evaporator are connected to one another in an annular form to constitute a main circuit of a refrigeration cycle, a refrigerant which can be brought into a supercritical state during operation is charged into said refrigeration cycle, the refrigerant in the supercritical state is injected into a cylinder of said compressor.